IN THE CLAIMS

1. (Currently Amended): An apparatus for detecting faults and providing diagnostics of a refrigeration system, comprising:

means for measuring five parameters associated with the refrigeration system; and

means for detecting faults that communicates with said measuring means, said detecting means calculates results based on the five measured parameters and outputs diagnostic information, said means for detecting faults includes means that assigns a level to each of said measure parameters in which levels are calculated based upon the relationship between performance parameters and operating range values of the refrigeration system.

2. (Original): The apparatus of claim 1 wherein the means for measuring comprises a data collection unit comprising a means for providing power, a first microprocessor, a first memory, five sensors, and a data port for assisting in the communication with said calculating means.

3. (Original): The apparatus of claim 2 wherein the five sensors includes three thermistors for measuring temperatures and a manifold gauge for measuring two pressures.

4. (Original): The apparatus of claim 3 wherein the temperatures include suction line temperature, liquid line temperature, and outdoor atmospheric temperature, and the pressures include liquid line refrigerant pressures and suction line refrigerant pressure.

5. (Original): The apparatus of claim 2 wherein said power providing means comprises a battery.

6. (Original): The apparatus of claim 2 wherein the calculating means comprises a second microprocessor, a second memory device and a second data port all communicating with each other.

7. (Original): The apparatus of claim 6 wherein said data port is adapted to passing data in accordance with RS232 specifications.

8. (Original): The apparatus of claim 2 wherein the calculating means comprises a hand-held computer.

9. (Previously Canceled)

10. (Previously Canceled)

11. (Currently Amended): A method of providing diagnostics of a refrigeration system, the method comprising:

storing a plurality of HVAC system parameters that have been pre-defined for a particular refrigeration system;

defining a plurality of diagnostic instructions;

measuring at least five but not more than nine HVAC system variables, said calculating step performed by assigning a level to each variable in which said levels are calculated based upon the relationship between performance parameters and operating range valves of the refrigeration system;

calculating various HVAC operational variables based on the measurement of said at least five HVAC system variables;

comparing the calculated HVAC operational variables to said stored variables;

conveying at least one of said plurality of diagnostic messages to a person performing said diagnostics.

12. (Original): The method of claim 11 wherein said at least five measurements are three temperature measurements and two pressure measurements.

13. (Original): The method of claim 12 wherein said three temperature measurements are suction line temperature (ST), liquid line temperature (LT), and outdoor atmospheric temperature (AMB) used to cool the condenser.

14. (Original): The method of claim 12 wherein said two pressure measurements are external measuring liquid line refrigerant pressure (LP) and suction line refrigerant pressure (SP).

15. (Canceled)

16. (New): The method of claim 11 wherein said levels assigned are "LOW", "BELOW GOAL", "ABOVE GOAL", and "HIGH", wherein a performance parameter is HIGH if its value is greater than the maximum operating limit; a performance parameter is ABOVE GOAL if its value is less than the maximum limit and greater than the goal; a performance parameter is BELOW GOAL if its value is less than the goal but greater than the low limit; and a performance parameter is LOW if its value is less than the minimum.